Two new species of Syrphidae (Diptera) from Shanxi, China

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Abstract: This paper describes two new species of Syrphidae from Shanxi Province of China. *Chrysotoxum seximaculatum* sp. nov. is similar to *C. rossicum* Becker, 1921, but differs from the latter by the rather short hairs on body, black pleuron, three pairs of orange marks on abdomen and tergite 5 black, the latter with long hairs on body, black pleuron with yellow marks, four pairs of yellow marks on abdomen and tergite 5 with yellow small lateral marks. *Dasysyrphus luyashanensis* sp. nov. is allied to *D. albostriatus* (Fallén, 1817), but can be distinguished from the latter by the postalar callus with yellow maculae, hind femur with black broad rings and apical segments of hind tarsi blackish dorsally, the latter with both postalar callus and postpronotal lobes with yellow maculae, basal 1/4 to 1/2 of the fore and middle femora, middle part of hind femur and apical half of hind tibia black.

Key words: hover flies; *Chrysotixum*; *Dasysyrphus*; taxonomy

中国蚜蝇科昆虫二新种记述（双翅目）

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摘要：记述中国山西蚜蝇科昆虫 2 新种：六斑长角蚜蝇 *Chrysotoxum seximaculatum* sp. nov.，与近似种红盾长角蚜蝇 *C. rossicum* Becker, 1921 的区别特征在于其体被毛极短，胸部侧板整个黑色，腹部仅具 3 对桔黄色斑，第 5 背板黑色后（后者被毛长，胸部侧板具黄斑，腹部具 4 对黄斑，第 5 背板具 1 对小黄斑）；芦芽山毛蚜蝇 *Dasysyrphus luyashanensis* sp. nov.，近似 *D. albostriatus* (Fallén, 1817)，但新种仅翅后胛具黄斑，后足腿节具宽黑环，后足跗节端部 4 节背面暗黑色（后者肩胛、翅后胛均具黄斑，前、中足腿节基部 1/4 至基半部、后足腿节中部、后足胫节端半部为黑色）。

关键词：食蚜蝇；长角蚜蝇属；毛蚜蝇属；分类

Introduction

The species of both *Chrysotoxum* and *Dasysyrphus* are rather abundant in China; the former genus includes about fifty members (Huang & Cheng, 2012; Huo & Zheng, 2004; Huo, Zhang & Zheng, 2006; Huo, Ren & Zheng, 2007; Li & He, 1992, 1994; Shannon, 1926) and the latter contains about thirteen individuals (He, 1991; Huang & Cheng, 2012; Huo, Zhang & Zheng, 2005; Huo, Zheng & Zhang, 2003; Huo, Ren & Zheng, 2007; Pan, Wang & Huo, 2010). Two new species from these two genera were discovered during a Diptera survey of Shanxi, China. The detailed descriptions and illustrations of the new species are offered in

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this paper. The type specimens are deposited in the Shaanxi University of Technology collections.

Material and methods

The specimens under study were collected by sweeping net. The male genitalia were extracted using an insect pin with a hooked tip. Genitalia were cleared by boiling in water with diluted KOH pellets for 5 min.

For morphology, the terminology of McAlpine (1981) is used, as specifically applied to Syrphidae by Thompson (1999).

Taxonomy

1. ***Chrysotoxum seximaculatum*** **sp. nov.** (Figs. 1–5)

Female. Compound eyes bare. Vertical triangle and frons black with black short hairs, yellowish power spots obliquely located in middle part of frons laterally. Ocellar triangle swollen, equilaterally triangular. Face distinctly concave at middle in lateral view, facial tubercle obvious, located below lower margin of eyes; face yellow with black broad median and lateral stripes. Genae black with whitish pollen and hairs. The occiput black with light hairs and whitish pollinosity, nearly concealing the ground colour. Antennae black, with the basoflagellomere longer than that of basal two segments together, arista brownish, bare, more or less shorter than basal two segments together.

Mesonotum black with yellow postpronotal lobe, pair of light grey stripes exceeding postpronotal lobe, yellow lateral stripes broadly interrupted behind transverse suture; hairs on mesonotum short, black, nearly appressed. Scutellum reddish orange, with black short hairs. Subscutellar fringe reddish brown, short and sparse. Pleuron shining black, light marks absent. Posterior convex part of anepisternum, anterior part of anepimeron and katepimeron sparsely covered with short yellow hairs. Upper and lower hair patches on posterior part of katepisternum broadly separated. Meron and metasternum bare.

Legs reddish orange with coxae and trochanter black, fore and middle femora blackish posteroventrally. Hairs on legs short, yellowish. Hairs on posteroventral apical angle of coxae absent.

Wing covered with microtrichia, hyaline, light yellowish brown on anterior half, with dark brown spot at middle. Vein R_{4+5} distinctly dipped into cell r_5. Crossvein r-m located before middle of cell dm. Halter brownish.

Abdomen black, projected posterolateral corners of tergites absent. Tergites 2–4 with yellow lateral spots anteriorly, inner end of spots widely separated, outer end far away from the margins of abdomen. Spot on tergite 2 larger than those on tergites 3 and 4, broad, nearly rectangular. Spots on tergites 3 and 4 narrow, almost triangular. Hairs on tergites black, short, appressed, except long yellowish hairs on tergite 1 and base of tergite 2 laterally, short, yellow hairs on tergites 3–5 basally triangularly distributed. Abdominal venter black with black, appressed short hairs. Sternite 1 lighter, nearly transparent, with long lighter hairs. Sternites 3 and 4 with semicircular yellow spots on anterior half, spot on sternite 3 larger than that on sternite 4.

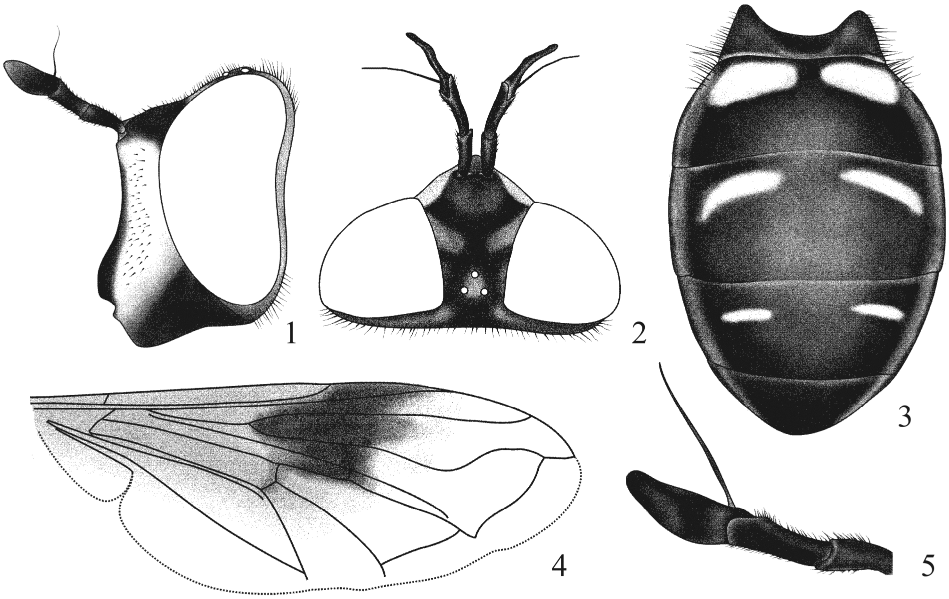
Male. Unknown.

Body length. 10–13 mm, Wing length. 8–11 mm.

Holotype. ♀, **China,** Shanxi, the group of Tianchi Lake, Ningwu County, 22-VII-2015, coll. Hao JING. **Paratypes.** 6♀, same data as holotype.

This new species is similar to *Chrysotoxum rossicum* Becker, 1921 in appearance, but differs from the latter by rather short hairs on body, black pleuron, three pairs of orange marks on abdomen and tergite 5 black, the latter with long hairs on body, black pleuron with yellow marks, four pairs of yellow marks on abdomen and tergite 5 with small lateral yellow marks (Violovitsh, 1974; Huang & Cheng, 2012; Huo, Ren & Zheng, 2007).

Etymology. The specific epithet is derived from the abdomen having six spots.



Figures 1–5. *Chrysotoxum seximaculatum* sp. nov. ♀. 1. Head, lateral view; 2. Head, dorsal view; 3. Abdomen, dorsal view; 4. Wing; 5. Antenna, inside view.

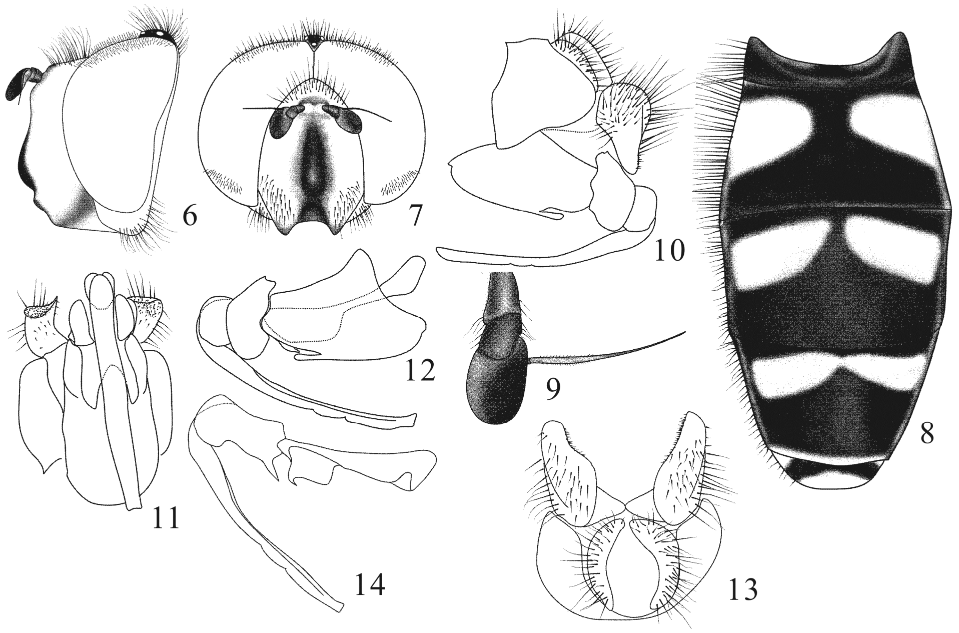
2. ***Dasysyrphus luyashanensis* sp. nov.** (Figs. 6–14)

Male. Compound eyes covered with densely yellowish white hairs. Vertical triangle densely yellow pollinose, covered with black and yellow hairs mixed. Frons yellow, black pilose, covered with yellowish white pollen and yellow hairs basally. Lunule brownish laterally. Occiput with thick yellowish white pollen, concealing the colour ground, hairs yellow dorsally and whitish hairs laterally. Face yellow, with dark brown stripes below eyes laterally. Face yellow pilose, with black broad median stripe extending almost to base of antenna. Oral margin yellowish brown. Genae yellow with concolorous hairs. Antennae blackish brown, yellowish on basal segments ventrally and subflagellomere basally. Arista dark brown, thicker basally, with short pile.

Mesonotum shining black, grey median stripes extended through to middle of mesonotum and yellow lateral stripes before transverse suture. Postalar callus yellow. Pile on mesonotum yellow, longer laterally. Scutellum yellow, tinged yellowish brown medially, with pile black, yellow basally. Subscutellar fringe long, thick, yellow. Pleuron black shining, with yellow pollinose spots on anepisternum posteriorly and katepisternum posterodorsally, with hairs long, yellow. Upper and lower hair patches on posterior katepisternum widely separated, narrowly joined posteriorly. Metasternum bare.

Legs yellow, with coxae and trochanter blackish brown, hind femur with wide black ring apically, hind tarsi with apical 4 segments blackish brown. Hairs on posteroventral apical angle of hind coxae absent.

Wing transparent with black stigma. Wing membrane microtrichose, with bare areas on anterior half of cell br, basal 2/3 of cell bm and cell cup basally. Vein R_{4+5} undulating, crossvein r-m located at cell bm basally.



Figures 6–14. *Dasysyrphus luyashanensis* sp. nov. ♂. 6. Head, lateral view; 7. Head, anterior view; 8. Abdomen, dorsal view; 9. Antenna; 10. Male terminalia, lateral view; 11. Male terminalia, ventral view; 12. Hypandrium and appendages, lateral view; 13. Epandrium and appendages, posterior view; 14. Aedeagus.

Abdomen black, shining. Tergite 2 with pair of large, yellow, triangular spots laterally. Tergites 3 and 4 with yellow arched bands on basal half, sometimes the bands narrowed or separated medially, then changing to pair of oblique spots. Tergites 4 and 5 with yellow posterior margins, tergite 5 with yellow lateral spots basally. All the spots and bands not extending to abdominal margins. Pile on abdominal tergites yellow, but black on posterior half of tergites 2 and 3, tergites 4 and 5 mainly black pilose. Abdominal venter dark brown, except yellowish white on sternites 1 and 2, anterior half and posterior margin of sternite 3, anterior and posterior margins of sternite 4. Venter yellow pilose. Post-abdomen black.

Male terminalia: sclerotized blackish brown. Epandrium subpentagonal, longer than high, with dorsal margin distinctly shorter than ventral margin. Cerci narrowly striped, dark yellow, with yellow long hairs. Surstylis obtusely angled basoventrally, broadly circular basally and dorsally, expanded centrad basodorsally, outer surface covered with light yellow long hairs, inner surface with black short setae. Hypandrium cylindrical, with posteroventral margin concaved at sides and forming lingula medially, which is shorter than lateral arms. Superior lobe irregularly rounded. Distal portion of aedeagus long, inflated basally, indistinctly segmented at apical part. Aedeagus base long, inflated apically, with basoventral corner narrowly projected forward. Aedeagal apodeme long, rectangular basally.

Female. Unknown.

Body length. 12–15 mm; wing length: 10–12 mm.

Holotype. ♂, **China,** Shanxi, Sweetheart Valley, Ningwu County, 31-VII-2015, coll. Jing HAO. **Paratypes.** 1♂, China, Shanxi, Mt. Luya, Ningwu County, 11-VIII-2015, coll. Jing HAO. 1♂, China, Shanxi, Mt. Luya, Ningwu County, 14-VIII-2015, coll. Jing HAO.

The new species is allied to *Dasysyrphus albostriatus* (Fallén, 1817) in appearance, but distinguished from the latter by postalar callus with yellow macule, hind femur with black broad rings and apical segments of hind tarsi blackish dorsally, the latter with both postalar callus and postpronotal lobes with yellow maculae, basal 1/4 to 1/2 of the fore and middle femora, the middle part of hind femer and apical half of hind tibia black (Hippa, 1968; Huang & Cheng, 2012; Huo, Ren & Zheng, 2007; Locke & Skevington, 2013).

Etymology. The specific epithet is derived from locality where the type specimens were collected.

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